

89861

September-12-12 7:51:39 AM

N900040100

Setup Start *NS1*

Stop *NS2*

Start Date: 9/12/12 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 9/21/12 **Req'd Qty:** 1.00 *** 1 ***

Customer:

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____
QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Run Start *NR1*

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr **Revision Nbr**

110

0.00

110

Skidtubes

Skidtubes

Memo

0.00

1- PICK D2600-1/-5 EXTRUSION AND CUT AS PER DWG

2- DRILL HOLES IN D2600-1/-5 AS PER DWG

3- CHAMFER HOLE AS PER DWG

4- BOND WEB IN TUBE AS PER DWG

SIKAFLEX: M122443

120

QC5- Inspect part completeness to step on W/O

0.00

120

QC

Quality Control

Memo

0.00

- Widths are 3.00 ± 0.07
- 1 part has

54 12-07-19 18-09-09

18
8-89

Work Order ID 89861

89861

Page 2

September-12-12 7:51:39 AM

Item ID: DSK134-1 Accept *N900040100* Setup Start *NS1*
 Revision ID: Stop *NS2*
 Item Name: Swaging test sample -Welded w/I-beam
 Start Date: 9/12/12 Start Qty: 1.00 *1* Cust Item ID:
 Required Date: 9/21/12 Req'd Qty: 1.00 *1* Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 *130* Large Fab Large Fab	Weld per dwg A/R Aluminum rod Batch: _____ M122324 Memo 1- WELD PER DWG 2- GRIND FLUSH AS PER DWG 3- C'BORE AS PER DWG	0.00 0.00							BE12/09/19 12-9-20 12-10-03 12.09.20
140 *140* QC Quality Control	QC9- Inspect visual per QSI004- Fusion Welds Memo	0.00 0.00							
150 *150* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.00							UP 12/10/13

Work Order ID 89861***89861***

Page 3

September-12-12 7:51:39 AM

Item ID: DSK134-1

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Swaging test sample -Welded w/I-beam

Start Date: 9/12/12

Start Qty: 1.00

1

Cust Item ID:

Required Date: 9/21/12

Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start ***NR1***

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

160

0.00

160

Skidtubes

Memo

0.00

Skidtubes

PERFORM ENGINEERING TEST

P 12/10/13

170

QC5- Inspect part completeness to step on W/O

0.00

170

QC

Memo

0.00

Quality Control

P 12/10/13

180

Identify as per dwg & Stock Location: _____

0.00

180

Packaging

Memo

0.00

Packaging

N/A TEST ONLY
P 12/10/13

Work Order ID 89861***89861***

Page 4

September-12-12 7:51:39 AM

Item ID: DSK134-1 Accept *N900040100* Setup Start *NS1*
Revision ID: Stop *NS2*
Item Name: Swaging test sample -Welded w/l-beam
Start Date: 9/12/12 Start Qty: 1.00 *1* Cust Item ID:
Required Date: 9/21/12 Req'd Qty: 1.00 *1* Customer:
Reference:

Approvals: Process Plan: Date: Tooling: Date: Run Start *NR1*
QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190	QC21- Final Inspection - Work Order Release	0.00							
190									
QC	Memo	0.00							
Quality Control									

*lost
Ø**ME
13-7-8*

Picklist Print

September-12-12 7:51:38 AM

Page 1

Work Order ID: 89861

Parent Item: DSK134-1

Parent Item Name: Swaging test sample -Welded w/I-beam

Start Date: 9/12/12

Required Date: 9/21/12

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A 12.09.11 NEW ISSUE DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D2600-1 -190 Extrusion Round 3" 206		Manufactured	No		B69622		Each	0.0000		DP ¹		12-9-10	
D2600-5-080 108 Extrusion 'I Beam' thin		Manufactured	No		B73909		Each	1.0000		DP ¹		12-9-10	
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				LG		1							
				73867		1							
D2649 Cross Bolt Spacer		Manufactured	No				Each	262.0000		1			
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				LG		262							
				85586		4							
				86912		3							
				87645		89							
				88529		166							

B 90967

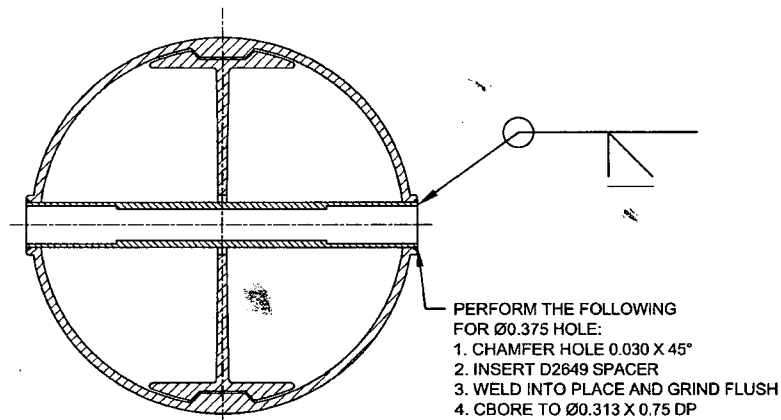
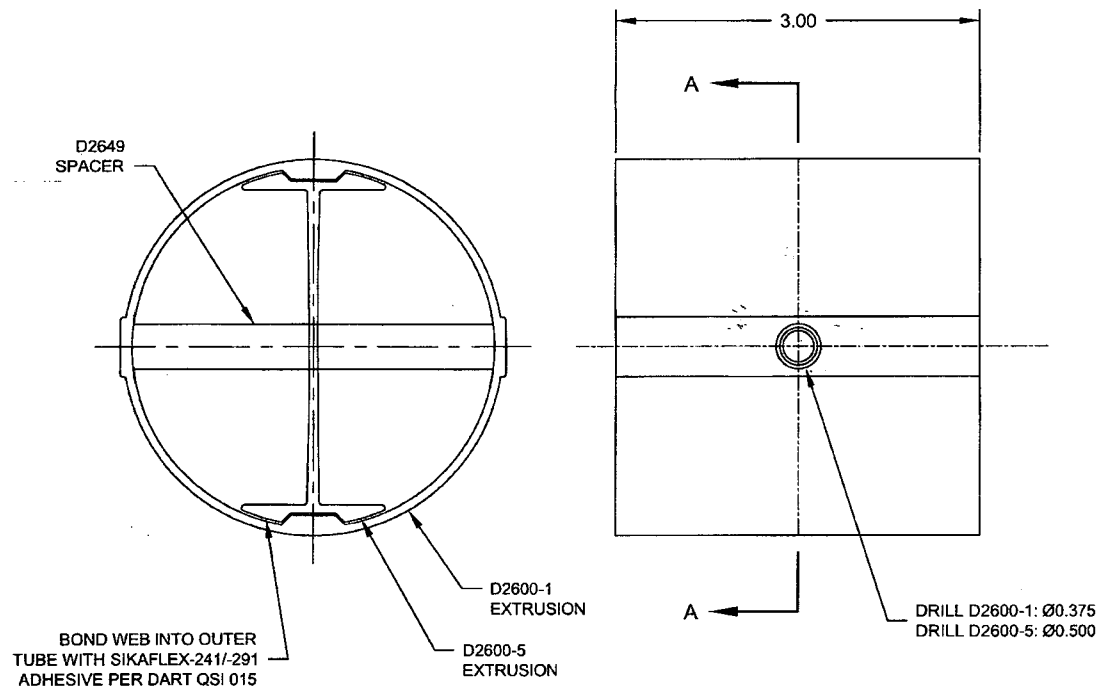
x5

BE 12-10-03

(5)

BE 12-09-19

Custom w/ JS



SECTION A-A

DSK134-1 TEST SAMPLE (WELDED W/ I-BEAM)

w/ 088861

PROTOTYPE
PLEASE RETURN ALL ISSUED
DATA TO ENGINEERING
9/12/9/11

DESIGN	<i>92</i>	DART AEROSPACE LTD	
DRAWN	<i>92</i>	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		DSK 134	SHEET 1 OF 4
APPROVED		TITLE	SCALE
DE APPR.		SWAGING TEST SAMPLES (206 SKID)	NTS
DATE	12.09.11	<small>COPYRIGHT © 2012 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	AGAINST DEPARTMENT/PROCESS <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data									
Equip/Tooling									
Operator									
Material									
Setup									
Other									
Process									
Supplier									
Training									
Unapproved									

FAULT CATEGORY

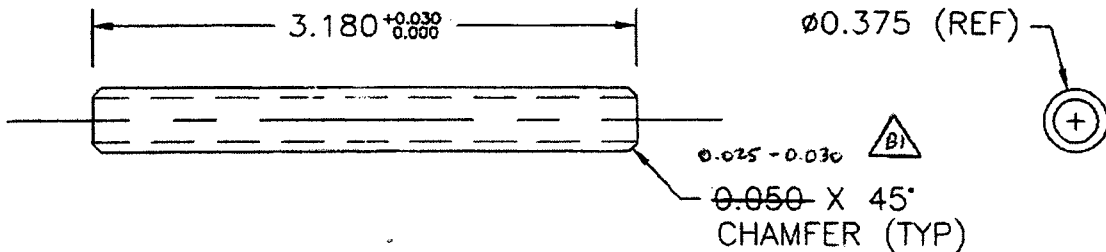
Landing Gear	General	Other
<input type="checkbox"/> Bending	<input type="checkbox"/> Bend	<input type="checkbox"/> Grain
<input type="checkbox"/> Centre Not Concentric to O/S	<input type="checkbox"/> BOM/Route	<input type="checkbox"/> Hardware
<input type="checkbox"/> Cracks	<input type="checkbox"/> Broken/Damaged	<input type="checkbox"/> Inspection Incomplete
<input type="checkbox"/> Crushed/Crimped	<input type="checkbox"/> Burrs	<input type="checkbox"/> Instructions Incomplete/Unclear
<input type="checkbox"/> Cuffs	<input type="checkbox"/> Contamination	<input type="checkbox"/> Maintenance
<input type="checkbox"/> Heat Treat	<input type="checkbox"/> Countersink	<input type="checkbox"/> Mislabeled
<input type="checkbox"/> Inspection Strip in Tube	<input type="checkbox"/> Cut Too Short	<input type="checkbox"/> Misread
<input type="checkbox"/> Ripples in Bend	<input type="checkbox"/> Drill Holes	<input type="checkbox"/> Offset
<input type="checkbox"/> Torque Waves in Extrusion	<input type="checkbox"/> Drawing	<input type="checkbox"/> Out of Calibration
<input type="checkbox"/> Turning Sequence	<input type="checkbox"/> Finish	<input type="checkbox"/> Out of Sequence
<input type="checkbox"/> Wave/Twist in Tube	<input type="checkbox"/> Folio	<input type="checkbox"/> Outside Dimensions
		<input type="checkbox"/> Ovalized
		<input type="checkbox"/> Over/Under tolerance
		<input type="checkbox"/> Part Incorrect
		<input type="checkbox"/> Part Lost/Missing
		<input type="checkbox"/> Part Moved
		<input type="checkbox"/> Positioned Wrong
		<input type="checkbox"/> Power Loss/Surge
		<input type="checkbox"/> Pressure/Forced
		<input type="checkbox"/> Temperature/Cure
		<input type="checkbox"/> Weld
		<input type="checkbox"/> Wrong Stock Pulled
		<input type="checkbox"/> Other



DESIGN <i>DM</i>	DRAWN BY <i>KE</i>	DART AEROSPACE USA, INC. FAIRCHILD INTERNATIONAL AIRPORT, WA	
CHECKED <i>DM</i>	APPROVED <i>BW</i>	DRAWING NO. D2649	REV. B SHEET 1 OF 1
DATE 98.01.14		TITLE CROSS BOLT SPACER	SCALE 1:1
A	97.03.25	NEW ISSUE	
B	98.01.14	3.180 WAS 3.230, ADD CHAMFER	
B1	CP 02.06.13	REDUCE CHAMFER PER TSR 1296.	

RELEASED
98.01.20 DS

SHOW
REVISIONS
ENCLOSURE
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 79566 M.6 J
12/01/27



MATERIAL: 6061-T6 (WW-T-700/6) OR 5052-H32 (WW-T-700/4)
0.375 DIA 0.058 WALL
TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

Receiving Report

Date: 12/2/9
 Supplier: Manner

Batch No: n/20633
 Dart P/O: 16093

Packing Slip: Yes ☒ No ☐
 Invoice: Yes ☐ No ☒
 Receipt: Cash ☐ Cr ☒

Release Note Attached: Yes ☒ No ☐ N/A ☐
 Waybill Attached: Yes ☒ No ☐
 Shipment Complete: Yes ☒ No ☐ N/A ☐
 QC6 Inspection 12/2/9 N/A ☒
 Work Order N/A ☒

Discrepancies

Part Number	Description	Quantity Ordered	Quantity Received	Quantity Returned	Quantity Short	Comments

Initials of receiver (if shipment OK) Level 12

Production/Admin:
 Date
 Received/Costing
 Initial

Location

Purchase Order Receipt Listing

February 10, 2012 8:05:47 AM

All amounts are calculated in domestic currency.

All Vendors PO ID PO16093 All Receipt Dates All Line Item Types
All Item ID/GL/WOs All Rec. Employees All Currencies
Grouped by Vendor ID

Purchase Order ID/ Curr Type	Line Nbr/ Insp Req	Project ID	Reference/ Description/ Cert Std	PO U/M / Stock U/M	Required Date Required Qty	Recv Date/ Recv Emp	Recv Qty (PO U/M)	Cost Per Unit/ Recv Value	Inspected Qty/ Rejected Qty (PO U/M)	MRB Qty/ MRB Reject Qty	Book Amt
VendorID\Vendor Name VC-MAR001 Marmon/Keystone Canada Ltd.											
PO16093	1		M304TR0.500W.035 f		2/08/12	2/09/12	300.0000	\$0.95	0.0000	0	\$284.20
CAD	No		304 RD Tube .500 x f .035W 120633		300.0000	DESJ02		\$284.20	0.0000	0	
	2		M304TR0.500W.049 f		2/08/12	2/09/12	200.0000	\$1.25	0.0000	0	\$249.30
	No		304 RD Tube .500 x f .049W 120633		200.0000	DESJ02		\$249.30	0.0000	0	
	3		M304TR0.675W.091 f		2/08/12	2/09/12	100.0000	\$1.40	0.0000	0	\$139.61
	No		304 RD Tube .675 x f .091W 120633		100.0000	DESJ02		\$139.61	0.0000	0	
	4		M304TS0.750W.065 f		2/08/12	2/09/12	500.0000	\$2.29	0.0000	0	\$1,146.78
	No		304 SQ Tube f .75x.75x.065W 120633		500.0000	DESJ02		\$1,146.78	0.0000	0	
	5		M6061T6T0.375W.0 f		2/08/12	2/09/12	312.0000	\$2.14	0.0000	0	\$668.92
	No		6061-T6 RD Tube f .375 x.058W 120633		312.0000	DESJ02		\$668.92	0.0000	0	
	6		M6061T6T0.500W.0 f		2/08/12	2/09/12	108.0000	\$2.11	0.0000	0	\$228.32
	No		6061-T6 RD Tube f .500 x.058W 120633		108.0000	DESJ02		\$228.32	0.0000	0	
	7		M6061T6T0.625W.0 f		2/08/12	2/09/12	108.0000	\$2.94	0.0000	0	\$317.71
	No		6061-T6 RD Tube f .625 x.065W 120633		108.0000	DESJ02		\$317.71	0.0000	0	

Purchase Order ID/ Curr Type	Line Nbr/ Insp Req	Project ID	Reference/ Description/ Cert Std	PO U/M / Stock U/M	Required Date Required Qty	Recv Date/ Recv Emp	Recv Qty (PO U/M)	Cost Per Unit/ Recv Value	Inspected Qty/ Rejected Qty (PO U/M)	MRB Qty/ MRB Reject Qty	Book Amt
------------------------------------	-----------------------------	------------	--	-----------------------	-------------------------------	---------------------------	-------------------------	------------------------------	--	-------------------------------	----------

Total Received Quantity:	1,628.0000
Total Qty to Inspect (PO U/M):	0.0000
Total Reject Quantity:	0.0000
Total Receipt Value:	\$3,034.85
Total Balance Due Quantity:	0.0000



Marmon/Keystone Canada Inc.
ACIERS SPÉCIALISÉS

290 Chemin du Tremblay
Boucherville QU CAN J4B 5X9
TEL. 514/527-9153
FAX. 450/641-4357

PACKING SLIP

PAGE... 1
Order : 1112389
Date... 02/07/2012

SOLD TO:

DART AEROSPACE LTD
1270 ABERDEEN STREET

HAWKESBURY ON CAN K6A 1K7

SHIPPED TO:

DART AEROSPACE LTD
1270 ABERDEEN STREET

HAWKESBURY ON CAN K6A 1K7

SHIP VIA		F.O.B.		SALESPERSON	YOUR ORDER NO.
TST OVERLAND #222212		BOUCHERVILLE		G. Dulude	16098
Ordered	Description	Number Pieces	Quantity Shipped	Back Ordered	
01	Fax all papers to Linda Lacelle 613-632-1053 rev: 01/11 GD STAINLESS-STEEL SEAMLESS TUBE SMLS TUBE 304L 1/2" X .035" A213 STS .500 .035 304L Tariff Number: 7304. Cust. part#: M304TR0.500W.035 HT#.....: YX1004-364 Total...	15 15	300/FT 300/FT		
02	STAINLESS-STEEL SEAMLESS TUBE SMLS TUBE 304L 1/2" X .049" A213 STS .500 .049 304L Tariff Number: 7304. Cust. part#: M304TR0.500W.049 HT#.....: YT3349 Total...	10 10	200/FT 200/FT		
03	STAINLESS WELDED PIPE SA-312 304L WLD PIPE 3/8" SCH40 SA312 SPW .375 .091 40S 304L Tariff Number: 7306.40.90.10 Cust. part#: M304TR0.675W.091 HT#.....: ATJ050119 HT#.....: ATS050426 HT#.....: 258189 Total...	2 2 1 5	40/FT 40/FT 20/FT 100/FT		
04	STAINLESS STEEL TUBE A554 304 ORN. TUBE 3/4" X 3/4" X .065" A554 STS .750 .750 .065 304APC Tariff Number: 7306.40.90.10 Cust. part#: M304TS0.750W.065 HT#.....: 9HP2 Total...	25 25	500/FT 500/FT		
05	Surchage de \$318.00 incluse dans le prix ALUMINUM SMLS TUBE ATS .375 .058 D6061 Tariff Number: 7608.20.00.90 Cust. part#: M6061T6T0.375W.058 HT#.....: F00013715 Total...	26 26	312/FT 312/FT		
06	ALUMINUM SMLS TUBE ATS .500 .058 D6061 Tariff Number: 7608.20.00.90				

Continued on next page..



A Marmon Distribution Services / Berkshire Hathaway Company



Marmon/Keystone Canada Inc.
ACIERS SPÉCIALISÉS

290 Chemin du Tremblay
Boucherville QU CAN J4B 5X9
TEL. 514/527-9153
FAX. 450/641-4357

PACKING SLIP

PAGE... 2
Order : 1112389
Date... 02/07/2012

SOLD TO:

DART AEROSPACE LTD
1270 ABERDEEN STREET

HAWKESBURY ON CAN K6A 1K7

SHIPPED TO:

DART AEROSPACE LTD
1270 ABERDEEN STREET

HAWKESBURY ON CAN K6A 1K7

SHIP VIA

TST OVERLAND #222212

F.O.B.

BOUCHERVILLE

SALESPERSON

G. Dulude

YOUR ORDER NO.

16093

Ordered	Description	Number Pieces	Quantity Shipped	Back Ordered
07	Fax all papers to Linda Lacelle 613-632-1053 Cust. part#: M6061T6T0.500W.058 HT#.....: F00011753 HT#.....: F00013711 Total... ALUMINUM SMLS TUBE D6061 Tariff Number: 7608.20.00.90 Cust. part#: M6061T6T0.625W.065 HT#.....: F00010188 HT#.....: F00012516 Total...	rev: 01/11 GD 6 3 9 2 7 9	72/FT 36/FT 108/FT 24/FT 84/FT 108/FT	

No. of Bcls/Pieces

1 / 0

Total Weight.....:

505

Customers..



A Marmon Distribution Services / Berkshire Hathaway Company

KAISER ALUMINUM FABRICATED PRODUCTS

KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
5205 KAISER DRIVE
KALAMAZOO, MI 49048

CERTIFIED TEST REPORT
<http://Online.KaiserAluminum.com>

CUSTOMER PO NUMBER: 61-17107-1		CUSTOMER PART NUMBER: AT/375.058/734		PRODUCT DESCRIPTION: Seamless Tube/Pipe	
KAISER ORDER NUMBER: 606551	LINE ITEM: 001	SHIP DATE: 01/04/2012	KAISER LOT NUMBER: F00013715	ALLOY: 6061	TEMPER: T6
WEIGHT SHIPPED: 629.000 LB	QUANTITY: 776.000 PCS	B/L NUMBER: 602261	DIAM/DAF/THKNS: 	WIDTH: 	LENGTH: 12.000 FT
SHIP TO: MARMON/KEYSTONE CORP 32944 US HIGHWAY 6 SPRING VALLEY, IL 61362 USA			SOLD TO: MARMON/KEYSTONE CORP 10700 MARMON DR BOLINGBROOK, IL 60440 USA		

Actual Physical Properties

REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	ELONG%	HARDNESS	CONDUCT.	BEND
* F00013715	0001	1	46.3	42.9	12.0	N/A	N/A	N/A
* F00013715	0002	1	46.2	42.9	12.3	N/A	N/A	N/A
* F00013715	0003	1	45.8	43.0	15.0	N/A	N/A	N/A

Chemical Composition (wt%), Aluminum Remainder

LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ea	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	0.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	0.00
D69881	.58	.26	.22	.06	.98	.07	.09	.02	.00	.00	.00	.01	.02
D69877	.57	.31	.25	.05	.96	.07	.06	.02	.00	.00	.00	.01	.02

Applicable Requirements:

Description: MADE IN USA
 OD: 0.375", Wall: 0.058", Round @
 AMS-4082P ASTM-B210-04 WW-T-700/6F
 WE TAKE EXCEPTION TO PARA. 5.2.1., Per AMS-4082P, WAS NOT OILED.
 THE FOLLOWING SPECIFICATIONS HAVE BEEN MADE INACTIVE OR
 CANCELLED: MIL-T-7081, WW-T-700F/GEN, WW-T-700/2E, WW-T-700/3F,
 WW-T-700/4F, WW-T-700/5E, WW-T-700/6F, and WW-T-700/7B.
 COMPLIES TO DIN EN 10204 JAN 2005
 COMPLIES TO DFAR 252.225-7001 and DFAR 252.225-7014
 No Weld Repair. Mercury Free.

MARMON / KEYSTONE
 Q.C. REVIEWED
 DATE **FEB 01 2012** INITIAL **[Signature]**

Miscellaneous Notes

MANUFACTURED IN USA (CHANDLER, AZ) MELTED IN USA

Plant Serial: 00022757
 Kaiser Order Number: 606551
 Line Item: 001

AT5
375
.058
D6061

KAISER

ALUMINUM

FABRICATED PRODUCTS

KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
5205 KAISER DRIVE
KALAMAZOO, MI 49048

Best in Class

CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

CERTIFICATION

Kaiser Aluminum Fabricated Products, LLC ('Kaiser') hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms & conditions of sale. Test reports are on file subject to examination.

Alex Yeh, Quality & Technology Manager

Yeh

Q. C. REVIEWED



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO16093**

Purchase Order Date 2/06/12

PO Print Date 2/06/12

Page Number 1 of 3

Order From :

VC-MAR001

MARMON/KEYSTONE CANADA LTD.
290 CHEMIN DU TREMBLAY
BOUCHERVILLE, QC J4B 5X9
CA

Contact Name

Vendor Phone 800 361 8142

Vendor Fax 450 641 4357

Vendor Account Nbr

Buyer

Chantal Lavoie

Requisition Nbr

10127-2607

Tax Resale Nbr

Terms

Net 30

Currency

CAD

FOB

Destination-Collect

Ship To :

DART AEROSPACE LTD

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	M304TR0.500W.035 017	304 RD Tube .500 x .035W	2/08/12 Yes	300.00 f	TST ground	\$0.9500	\$285.00
		Special Inst: MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269					
2	M304TR0.500W.049 n	304 RD Tube .500 x .049W	2/08/12 Yes	200.00 f	TST ground	\$1.2500	\$250.00
		Special Inst: MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269					
3	M304TR0.675W.091 n	304 RD Tube .675 x .091W	2/08/12 Yes	100.00 f	TST ground	\$1.4000	\$140.00

Change Nbr: 1

Change Date: 2/06/12

No substitution or deviation without
consent.
Certificate of Conformity or Material
Certification required when applicable



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO16093

Purchase Order Date 2/06/12

PO Print Date 2/06/12

Page Number 2 of 3

Order From :

VC-MAR001

MARMON/KEYSTONE CANADA LTD.
290 CHEMIN DU TREMBLAY
BOUCHERVILLE, QC J4B 5X9
CA

Contact Name

Vendor Phone 800 361 8142

Vendor Fax 450 641 4357

Vendor Account Nbr

Buyer

Chantal Lavoie

Requisition Nbr

10127-2607

Tax Resale Nbr

Net 30

Terms

CAD

Currency

FOB

Destination-Collect

Special Inst:

MATERIAL: AISI 304/316 SS SEAMLESS
ROUND TUBING
AS PER ASTM A213 OR ASME SA213 OR
ASTM A269

MATERIAL: T304/T316 3/8 SCHEDULE
40

(REF DART SPEC'S M304TR0.675W.091)

QTY	Part Number	Description	Unit	Price	Amount	Material
4	M304TS0.750W.065	304 SQ Tube .75x.75x.065W	2/08/12	500.00	\$2,300.00	\$1,150.00
			Yes	f		

Special Inst:

MATERIAL: AISI 304/316 SEAMLESS
STAINLESS
STEEL SQUARE TUBING AS PER ASTM
A554 MILL FINISH
OR ASTM A260 MILL FINISH

QTY	Part Number	Description	Unit	Price	Amount	Material
5	M6061T6T0.375W.058	6061-T6 RD Tube .375 x.058W	2/08/12	312.00	\$2,150.00	\$670.80
			Yes	f		

Special Inst:

MATERIAL: 6061-T6 OR 6061-T62
TUBING PER
WW-T-700/6 OR AMS 4080 OR AMS 4082
OR
QQ-A-200/8 OR QQ-A-225/8

QTY	Part Number	Description	Unit	Price	Amount	Material
6	M6061T6T0.500W.058	6061-T6 RD Tube .500 x.058W	2/08/12	108.00	\$2,120.00	\$228.96
			Yes	f		

No substitution or deviation without
consent.
Certificate of Conformity or Material
Certification required when applicable

Change Nbr: 1

Change Date: 2/06/12



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO16093**

Purchase Order Date 2/06/12

PO Print Date 2/06/12

Page Number 3 of 3

Order From :

VC-MAR001

MARMON/KEYSTONE CANADA LTD.
290 CHEMIN DU TREMBLAY
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CA

Contact Name

Vendor Phone 800 361 8142

Vendor Fax 450 641 4357

Vendor Account Nbr

Buyer

Chantal Lavoie

Requisition Nbr

Tax Resale Nbr

10127-2607

Terms

Net 30

Currency

CAD

FOB

Destination-Collect

Special Inst:

MATERIAL: 6061-T6 OR 6061-T62
TUBING PER
WW-T-700/6 OR AMS 4080 OR AMS 4082
OR
QQ-A-200/8 OR QQ-A-225/8

7

M6061T6T0.625W.065

6061-T6 RD Tube .625
x.065W

2/08/12

108.00 TST ground

\$2.9500

\$318.60

Yes

f

Special Inst:

MATERIAL: 6061-T6 OR 6061-T62
TUBING PER
WW-T-700/6 OR AMS 4080 OR AMS 4082
OR
QQ-A-200/8 OR QQ-A-225/8

PO Total:

\$3,043.36

MATERIAL CERTIFICATION
REQ'D UPON DELIVERY

Change Nbr: 1

Change Date: 2/06/12

No substitution or deviation without
consent.
Certificate of Conformity or Material
Certification required when applicable



Metcor Inc.
560, boul. St-Jur-Sauvé
St-Eustache (Québec) J7R 5A8
Tél : 450-473-1884
Télécopieur/Fax administration : 450-473-5492
Télécopieur/Fax production : 450-451-8454

Certificat de conformité
Certificate of conformance

BON DE TRAVAIL order	CHARGEMENT load
175178	1

CLIENT / customer 215
DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K8A 1K7

LIVRÉ À / shipped to:
DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K8A 1K7

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	CODE DE TRAITEMENT mat'l heat code	NUMÉRO DE LOT lot/number
PO16874		AL-6061		

SPECIFICATIONS DU PROCÉDÉ
processing specifications

BOL ANNEAL
COND.W

XIGENCE / requirement SPÉCIFICATIONS / specifications TESTS EXÉCUTÉS / performed RÉSULTATS DE TESTS / results
Visual

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
40	0.74	D2649 CROSS BOLT SPACER CONTENANT: 1 BOÎTE DE CARTON

COMMENTAIRES / comments

INSPECTEUR / inspector:



DATE: 2012-01-17

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC J7R 5A8
Tel: 450-473-1884 / Fax: 450-491-5498

Recu de Livraison

Order	Shipper	Shipping Seq.
175178	1	60227

Shipped Complete

Customer **215**

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

Shipped To:

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

Purchase Order Number	Customer Shipper No.	Material Type	Order Date	Carrier
PO16674		AL-6061	2012/4/12	PURO
Quantity	Part No. / Part Name / Part Description			Pounds
40	D2649 CROSS BOLT SPACER			,74

CONTENANT: 1 BOÎTE DE CARTON

Container Type	# Of Containers	Container Comments
BOITE DE CARTON	1	

PACKING	
----------------	--

Quantity Shipped: 40
Pounds Shipped: 0,74
Quantity Remaining: 0
Pounds Remaining: 0,00

Quantity Shipped: 40

Pounds Shipped: 0,74

Signature:

Date:

Shipped ON: 2012/04/18

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

Certificat de Conformité Détaillé Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
175178	1

CLIENT / customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

1

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	CODE DE TRAITEMENT mat'l heat code	NUMÉRO DE LOT lot number						
PO16674		AL-6061								
SPÉCIFICATIONS DU PROCÉDÉ processing specifications										
SOL ANNEAL COND.W CONDITION T4										
EXIGENCE / requirement SPÉCIFICATIONS / specified TESTS EXÉCUTÉS / performed RÉSULTATS DE TESTS / results										
Visual										
QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description								
40	0.74	D2649 CROSS BOLT SPACER CONTENANT: 1 BOÎTE DE CARTON								
Operation	Temp. spécifiée Specified Temp	Temps de trempe Spécifié Specified Soak Temp	Atmosphère Atmosphere	Carbone Carbon Potential	Q-Media Q-Temp	Four # Furnace #	Date Départ Start Date	Heure d'entrée Time In	Heure de sortie Time Out	Date Complétée Date complete
1.00 CONT. INIT.	LAVAGE		si nécessaire							
2.00 Degrease										
3.00 PREPARING	COMPTAGE									
4.00 PREHEAT 1	529°C	0:30	air			701				
5.00 WATER TEM										
6.00 SOL ANNEAL	529°C	0:40	AIR		WATER 32MAX	701				
7.00 QUENCHIDE										

METCOR INC.
560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC, J7R 5A8
Tel: 450-473-1884 / Fax: 450-491-5498

Certificat de Conformité Détaillé
Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
175178	1

CLIENT / customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

Operation	Temp. spécifiée Specified Temp	Temps de trempage Spécifié Specified Soak Temp	Atmosphère	Carbone Carbon Potential	Q-Media Q-Temp	Four # Furnace #	Date Départ Start Date	Heure d'entrée Time In	Heure de sortie Time Out	Date Complétée Date complete
8.00 QUENCH TI										
9.00 WATER TEN										
10.00 CRYOGENIK	-29		AZOTE							
11.00 Pack	-68		CO2							
12.00 FINAL INSP							04-17-2012			04-17-2012

COMMENTAIRES / comments

APPROUVÉ par / Approved by:

DATE: 2012-04-23

/ Nous certifions que toute l'information comprise sur ce rapport est exacte et conforme aux requis du client. / We certify that all the information on this report is exact and in accordance with the order requirements.

Linda Lacelle

From: Isam El-Kassis <ielkassis@dartaero.com>
Sent: September-06-12 3:54 PM
To: 'Linda Lacelle'
Subject: FW: 206 swaging test requirements.

Hi Linda,

Please see below for swaging tubes, please pass it along to Dan.
We should move on this project ASAP,
We'll be having a large order in front of us, therefore we need to prove the swaging operation.

Thank you,

Isam

From: Chris Provencal [<mailto:cprovencal@dartaero.com>]
Sent: Thursday, September 06, 2012 3:48 PM
To: David Duval; Mike Petsche; Isam el Kassis
Subject: RE: 206 swaging test requirements.

The actual swaging should be per the c'bore instruction on D2650, which is 0.313 DIA x 0.75 DP

From: Chris Provencal [<mailto:cprovencal@dartaero.com>]
Sent: Thursday, September 06, 2012 3:42 PM
To: David Duval; Mike Petsche; Isam el Kassis
Subject: 206 swaging test requirements.

David,

Swaging test pieces needed:

5 welded x-bolt spacers with I-beam
5 welded x-bolt spacers with no I-beam
5 swaged x-bolt spacers with I-beam
5 swaged x-bolt spacers with no I-beam

3" long skidtube sections each.

Recommend that the x-bolt spacers themselves be cut 3.245" long (if not already cut)

Need to let the swaged skid sections sit for at least a week to see if they develop any cracks before we load test them

-Chris

RD3425

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	AGAINST DEPARTMENT/PROCESS <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data <input type="checkbox"/>									
Equip/Tooling <input type="checkbox"/>									
Operator <input type="checkbox"/>									
Material <input type="checkbox"/>									
Setup <input type="checkbox"/>									
Other <input type="checkbox"/>									
Process <input type="checkbox"/>									
Supplier <input type="checkbox"/>									
Training <input type="checkbox"/>									
Unapproved <input type="checkbox"/>									

FAULT CATEGORY

Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped. <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio	<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions
		<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge
		<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other

DRAWING NO. D2580	TITLE 205 SKIDTUBE ASSEMBLY	REV. E	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO. D2580-E-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>UP</i>	CHECKED <i>ASS</i>	MFG. APPR. <i>ER</i>	APPROVED <i>#</i>	DE APPR. <i>#</i>		
DATE 11.12.13	DATE 11.12.13	DATE 11.12.13	DATE 11.12.13	DATE 11.12.13	DATE 11.12.13	

PURPOSE:

CHANGE ALL C'BORED WELDED CROSSBOLT SPACERS TO SWAGED SPACERS

CHANGE:

PARTS LIST IS AMENDED AS FOLLOWS:

WAS

QTY	QTY	QTY	PART NUMBER	DESCRIPTION
-041	-045	-047		
20	24	25	D2579	CROSS BOLT SPACER

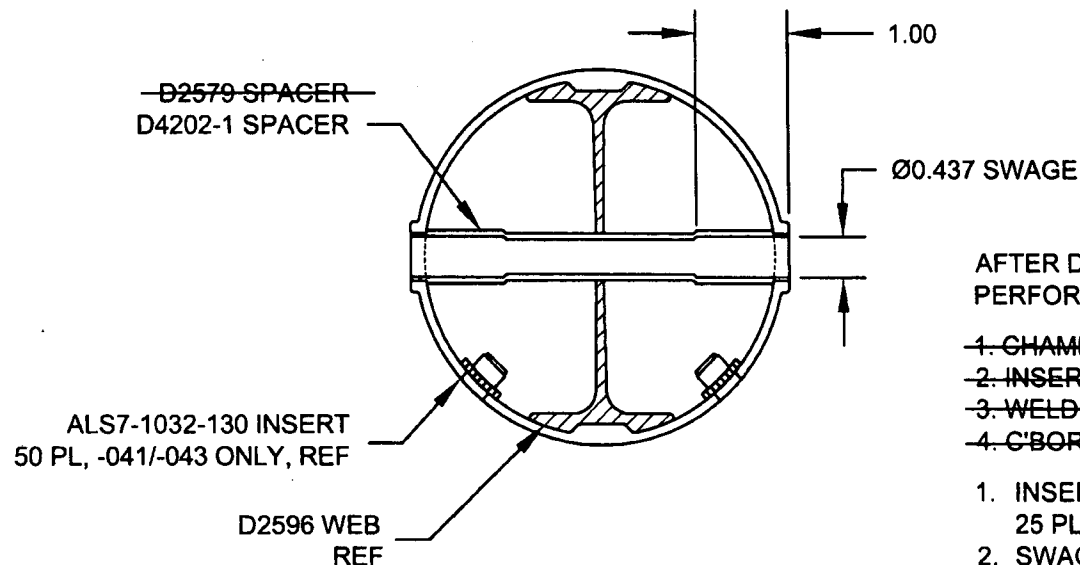
IS

	4		* D2579	CROSS BOLT SPACER
20	20	25	D4202-1	SPACER

SECTION B-B, SECTION F-F, & SECTION I-I ARE AMENDED AS FOLLOWS
FOR ALL HOLES THAT WERE ORIGINALLY C'BORED:

*** FOR -045 SKIDTUBE ONLY:**
WELD 4X D2579 SPACERS PER DWG
IN LOCATIONS MARKED "NO C'BORE".
REF SHEET 4 OF DWG.

RELEASED
2011-12-14 *mp*



AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:

- ~~1. CHAMFER HOLE 0.060 X 45°~~
- ~~2. INSERT D2579 SPACER (20 PLACES)~~
- ~~3. WELD INTO PLACE AND GRIND FLUSH~~
- ~~4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP~~

1. INSERT D4202-1 SPACER, 20 PL (-041) OR 20 PL (-045) OR 25 PL (-047)
2. SWAGE TO Ø0.437 X 1.00 DEEP PER QSI 002
3. TRIM / GRIND FLUSH PER QSI 002

SECTION B-B, F-F, I-I
NOT TO SCALE

Material Requisitions

R/S#: _____

Part Number: M 606/T 6 A 1.000 w. 125 Batch #: M 122081 Quantity: 6"Received/taken by: Dereck Date: 12/09/10**USED FOR:** (must be completed)

Engineering Project # P _____

OR

Shop Tooling (non-work order) _____

Continues progress skid tube table's

H:\forms\purchase\approved purch\MATREQ revB

Material Requisitions

R/S#: _____

Part Number: D2600-1-190 Batch #: 69622 Quantity: 1Received/taken by: DAN Date: 12/09/10**USED FOR:** (must be completed)

Engineering Project # P _____

OR

Shop Tooling (non-work order) _____

RD 3425

H:\forms\purchase\approved purch\MATREQ revB

Material RequisitionsA/R m122324

R/S#: _____

Part Number: D2649 Batch #: 388529 Quantity: 10Received/taken by: BARCLAY Date: 12-09-19**USED FOR:** (must be completed)

Engineering Project # P _____

OR

Shop Tooling (non-work order) RD 3425

David Duval

From: Chris Provencal <cprovencal@dartaero.com>
Sent: Thursday, September 06, 2012 3:48 PM
To: David Duval; Mike Petsche; Isam el Kassis
Subject: RE: 206 swaging test requirements.

The actual swaging should be per the c'bore instruction on D2650, which is 0.313 DIA x 0.75 DP

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Sent: Thursday, September 06, 2012 3:42 PM
To: David Duval; Mike Petsche; Isam el Kassis
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5 welded x-bolt spacers with I-beam
5 welded x-bolt spacers with no I-beam
(5 swaged x-bolt spacers with I-beam)
(5 swaged x-bolt spacers with no I-beam)

3" long skidtube sections each.

Recommend that the x-bolt spacers themselves be cut 3.245" long (if not already cut)

Need to let the swaged skid sections sit for at least a week to see if they develop any cracks before we load test them

-Chris

$$3.75 - .058 - .058 = 2.59$$

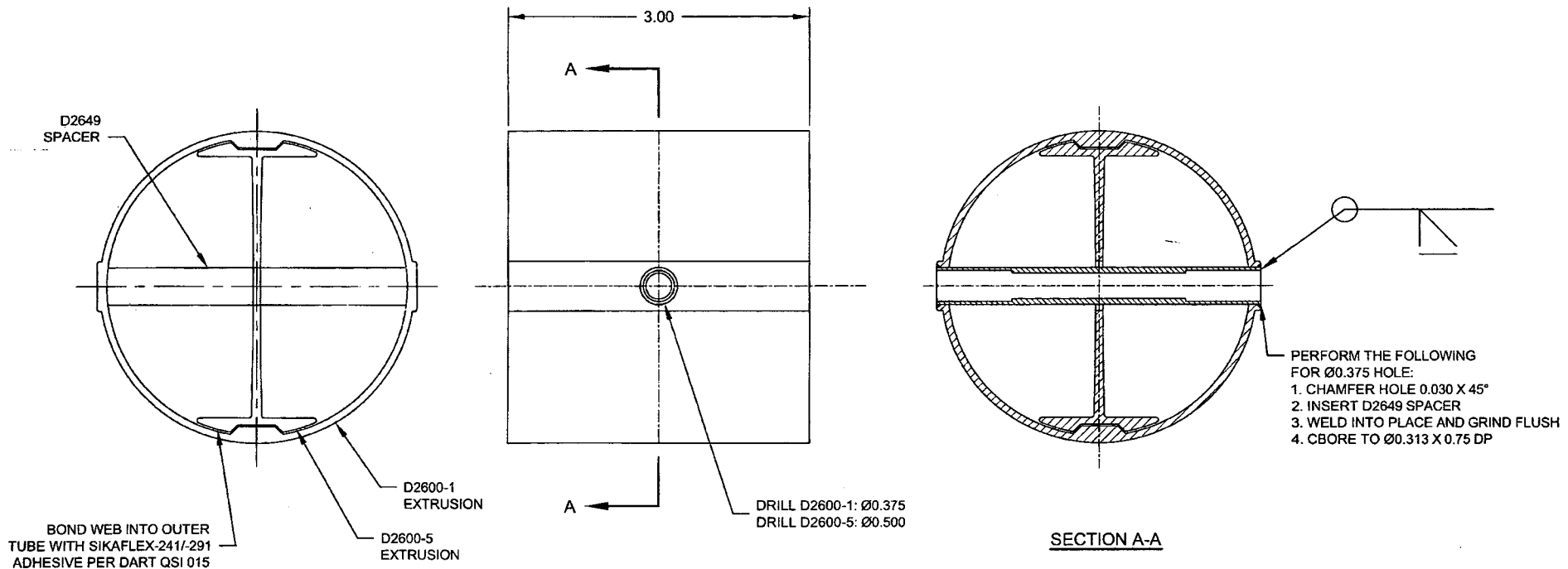
$$2.59 \div 3.13 = 0.83$$

$$100 - 83 = 17\%$$

~~17%~~

Need to expand 17% not good for TG.
Not more than 12.9%

REFERENCE ONLY



DSK134-1 TEST SAMPLE (WELDED W/ I-BEAM)

PROTOTYPE
PLEASE RETURN ALL ISSUED
DATA TO ENGINEERING
4/12/9/11

DESIGN	97	DART AEROSPACE LTD	
DRAWN	97	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		DSK 134	SHEET 1 OF 4
APPROVED		TITLE	SCALE
DE APPR.		SWAGING TEST SAMPLES (206 SKID)	NTS
DATE	12.09.11	<small>COPYRIGHT © 2012 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

NCR: Yes / No

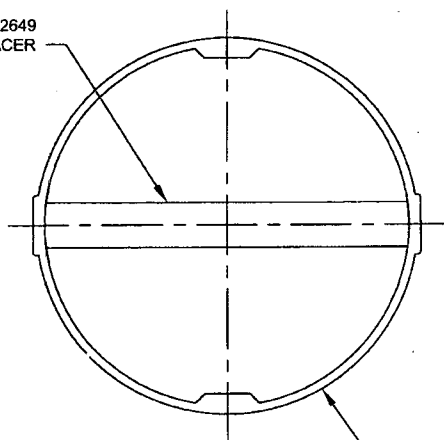
WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

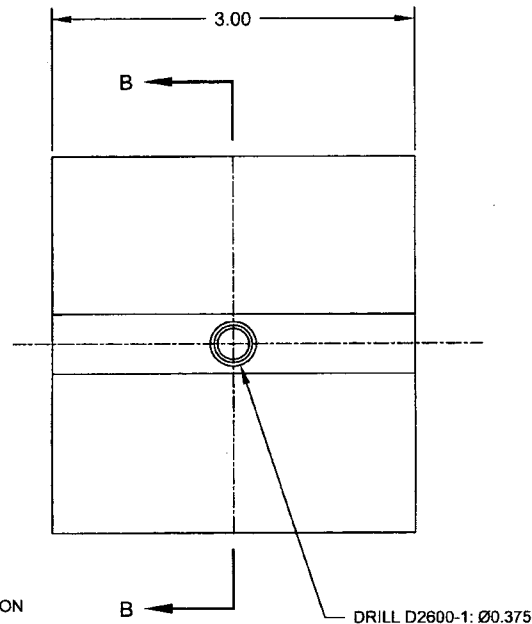
QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____				DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		AGAINST DEPARTMENT/PROCESS <div style="display: flex; justify-content: space-between;"> <div> Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/> </div> <div> Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/> </div> <div> Water Jet <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> </div> <div> Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/> </div> </div>					
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data <input type="checkbox"/>											
Equip/Tooling <input type="checkbox"/>											
Operator <input type="checkbox"/>											
Material <input type="checkbox"/>											
Setup <input type="checkbox"/>											
Other <input type="checkbox"/>											
Process <input type="checkbox"/>											
Supplier <input type="checkbox"/>											
Training <input type="checkbox"/>											
Unapproved <input type="checkbox"/>											
FAULT CATEGORY											
Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped. <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube			General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio			<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions			<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other		

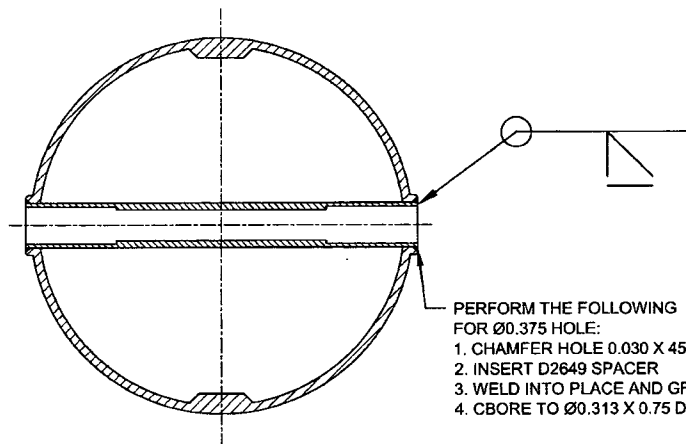
D2649
SPACER



D2600-1
EXTRUSION



DRILL D2600-1: Ø0.375



SECTION B-B

- PERFORM THE FOLLOWING
FOR Ø0.375 HOLE:
1. CHAMFER HOLE 0.030 X 45°
 2. INSERT D2649 SPACER
 3. WELD INTO PLACE AND GRIND FLUSH
 4. CBORE TO Ø0.313 X 0.75 DP

DSK134-3 TEST SAMPLE (WELDED W/O I-BEAM)

PROTOTYPE
PLEASE RETURN ALL ISSUED
DATA TO ENGINEERING
4/12/9/11

DESIGN	90	DART AEROSPACE LTD	
DRAWN	90	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		DSK 134	SHEET 2 OF 4
APPROVED		TITLE	SCALE
DE APPR.		SWAGING TEST SAMPLES (206 SKID)	NTS
DATE	12.09.11	<small>COPYRIGHT © 2012 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD</small>	

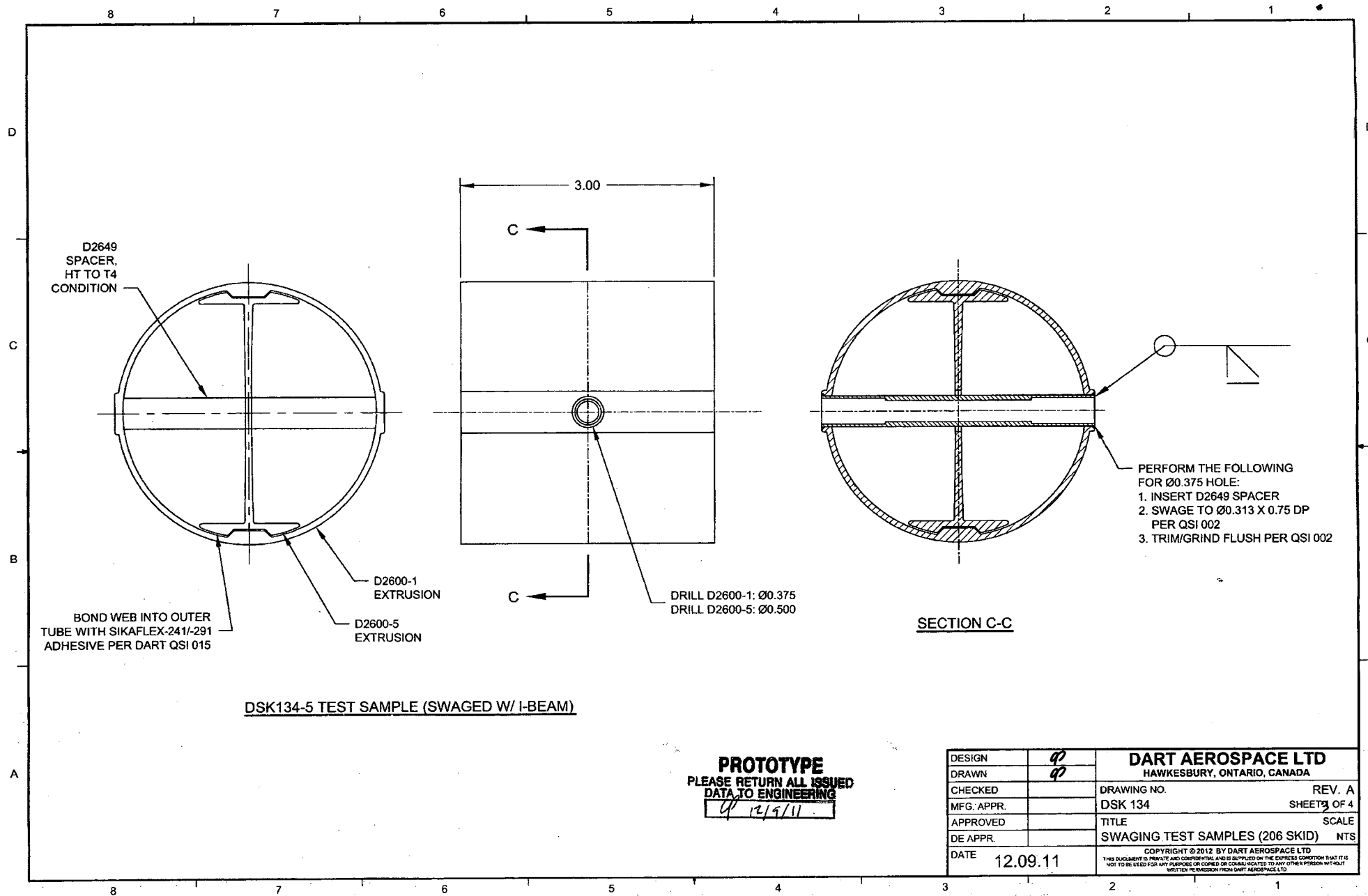
NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____				DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		AGAINST DEPARTMENT/PROCESS <div style="display: flex; justify-content: space-between;"> <div> Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/> </div> <div> Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/> </div> <div> Water Jet <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> </div> <div> Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/> </div> </div>					
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data <input type="checkbox"/>											
Equip/Tooling <input type="checkbox"/>											
Operator <input type="checkbox"/>											
Material <input type="checkbox"/>											
Setup <input type="checkbox"/>											
Other <input type="checkbox"/>											
Process <input type="checkbox"/>											
Supplier <input type="checkbox"/>											
Training <input type="checkbox"/>											
Unapproved <input type="checkbox"/>											
FAULT CATEGORY											
Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped. <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube			General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio			<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions			<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other		



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D2649
SPACER,
HT TO T4
CONDITION

D2600-1
EXTRUSION

DRILL D2600-1: Ø0.375

PERFORM THE FOLLOWING
FOR Ø0.375 HOLE:
1. INSERT D2649 SPACER
2. SWAGE TO Ø0.313 X 0.75 DP
PER QSI 002
3. TRIM/GRIND FLUSH PER QSI 002

SECTION D-D

DSK134-7 TEST SAMPLE (SWAGED W/O I-BEAM)

PROTOTYPE
PLEASE RETURN ALL ISSUED
DATA TO ENGINEERING

12/9/11

DESIGN	Q	DART AEROSPACE LTD	
DRAWN	Q	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		DSK 134	SHEET 4 OF 4
APPROVED		TITLE	SCALE
DE APPR.		SWAGING TEST SAMPLES (208 SKID)	NTS
DATE	12.09.11	<small>COPYRIGHT © 2012 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

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WORK ORDER NON-CONFORMANCE / UPDATE

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